

Claims

1. Device for producing a finished contour of a workpiece having the contour of an unfinished part by grinding in several steps, preferably at cam lobes (2) of a camshaft, comprising a grinding machine (3), which has grinding means for grinding away an oversize corresponding to the difference between the contour of an unfinished and that of a finished part, and a control device (4) for controlling the grinding machine (3), characterized in that a measuring device (13) for measuring the actual contour of the unfinished part of the workpiece is provided, which is coupled directly or indirectly by means of at least one data transfer device (9, 10, 11, 12a, 12b) with the control device (4), so that the values determined by the measuring device (13) can be supplied to the control device (4) and at least specified values for controlling the delivery of the grinding agent can be determined from these measured values by the control device (4).
2. The device of claim 1, characterized in that a measuring unit (13) is disposed separately from the grinding machine (3) and that a device for transporting the workpiece is provided between the measuring device (13) and the grinding machine (3).
3. The device of claims 1 or 2, characterized in that a plant control computer (5), to which the values from the measuring device (13) are to be supplied over the first data transfer device (9) is connected between the measuring device (13) and the control device (4), so that a grinding program, which is suitable for the present grinding task and can be transferred over a second data transfer device (11) to the control device (4), can be selected via the plant control computer (5) on the basis of the values measured.
4. The device of one or more of claims 1 to 3, characterized in that means are provided, with which the values, determined by the measuring device (13), and/or the

grinding program selected can be assigned directly or indirectly to the individual workpiece.

5. The device of claim 4, characterized in that the means assign to the workpiece a coding containing the values measured and that further means are provided, which can read the coding when the workpiece is placed in the grinding machine (3).

6. The device of one of the claims 1 to 5, characterized in that means are provided with which workpieces, after the contour of unfinished parts are measured in the measuring device (13), are not supplied for further processing if the measured contour of the unfinished parts falls below the contour of the finished parts by more than a permissible tolerance range.

7. Device for grinding a finished contour of cam lobes (2) of a camshaft (1) with a grinding machine (3) and a control device controlling the latter, grinding programs being specifiable by the control device (4) and containing specified values for the grinding parameters of the RPM of the grinding means and/or of the workpiece, when RPM of the grinding means and/or of the workpiece, rate of advance, delivery and axial position of the workpiece, characterized in that at least the following components are provided:

- a measuring device (13) for measuring the unfinished contour of the workpiece, which is to be ground,
- a plant control computer (5) for determining and/or selecting one or more grinding programs,
- a first data-transfer device (9) between the measuring device (13) and the plant control computer (5) as well as a second data transfer device (11) between a plant control computer (5) and the control device (4), it being possible to supply the values of the contour of the unfinished part, measured by the measuring device (13), over the first data transfer device (9) to the plant control computer (5) and,

depending on these values, to determine and/or select at least one grinding program in the plant control computer and supply it over the second data transfer device (11) to the control device (4) and to control the grinding machine (3) from the control device (4) one in accordance with the grinding program determined and/or selected.

8. Method for producing a finished contour of a workpiece having an unfinished contour by grinding in several steps, preferably at cam lobes (2) of a camshaft (1), for which the contour of the unfinished part of the workpiece is ground away in each step by a specifiable amount, so that the finished contour of the workpiece is present after the last step, characterized by the following steps:

- a) the contour of the unfinished part of the workpiece is measured before the grinding process is commenced;
- b) the values determined are transmitted directly or indirectly to a control device (4);
- c) depending on these values measured, either a grinding program is calculated, which is adapted to the actual contour of the unfinished part and for which the supplying of grinding agent to the grinding machine (3) is controlled taking into consideration the actual contour of the unfinished part, or a specified and stored grinding program is selected, for which, in comparison to the remaining grinding programs that may be selected, the control of the delivery of the grinding agent of the grinding machine (3) is adapted best to the actual contour of the unfinished part.

9. The method of claim 8, characterized in that, for a grinding program with several grinding steps, which cannot be changed, a first grinding step is skipped depending on the measured values of the contour of the unfinished part that has been determined.

10. The method of claim 9, characterized in that, in addition to the first grinding step, further grinding steps that follow the first one are skipped.